

AMENDMENTS TO CLAIMS

Claims 1-6 (Canceled)

7. (Curently Amended) A method of removing particulate debris from a vessel using a catheter assembly the method comprising:

inserting and advancing a sheath having a discharge lumen to a location in the vessel said delivery sheath discharge lumen coupled to a collection vessel, said sheath not having an occlusion balloon thereon such that said sheath partially blocks the vessel but allowing some blood flow in the vessel;

inserting and advancing an interventional device to a treatment location said interventional device of type having;

an elongate body enclosing a fluid supply lumen and a angioplasty therapy inflation lumen;

an angioplasty therapy balloon for delivering angioplasty treatment located near the distal tip of said elongate body;

said elongate body having a central axis extending in the direction of the therapy balloon;
a gap communicating with said fluid supply lumen for introducing a primary fluid jet flow in said vessel, said gap located distal of said therapy balloon, said gap projecting said fluid jet in an initial direction away from the central axis of the interventional device said wall located immediately adjacent said gap, and forming an annular surface next to the gap on the interventional device;

said wall serving to restrict entrainment of fluid by said primary fluid flow, thereby creating a pressure difference across said primary fluid jet flow such that said primary fluid flow turns through an angle away from said initial direction away from said wall and turns toward said wall thereby exhibiting the Coanda effect and thereby;

promoting retrograde flow into said discharge lumen.

8. (Previously presented) The method of claim 18 wherein said moving step begins near said occlusion and ends after the interventional device enters the delivery sheath.

9. (Previously presented) The method of claim 7 wherein said fluid is injected at a first injection pressure above the blood pressure in the vessel and the injected fluid pressure drop to a second exhaust pressure in said delivery catheter where said exhaust pressure is above said blood pressure, establishing a pressure gradient in said discharge lumen and promoting flow from said gap to said discharge lumen.

Claims 10-17 (Canceled)

18. (Previously presented) The method of claim 7 wherein said injection is carried out while moving said interventional device in said vessel with respect to said delivery sheath.

19. (Previously presented) The method of claim 7 wherein said discharge lumen is coupled to a syringe collection chamber.

20. (Previously presented) The method of claim 7 wherein said discharge lumen is coupled to a syringe vacuum chamber.

21. (Previously presented) The method of claim 7 wherein said primary fluid is supplied by a supply syringe chamber.

22. (Previously presented) The method of claim 21 wherein the fluid supplied is a thrombolytic.

23. (Previously presented) The method of claim 21 wherein the fluid supplied is saline.

24. (Previously presented) The method of claim 21 wherein the fluid supplied is contrast agent.

Claims 25-26 (Canceled)

27. (Previously presented) The method of claim 7 wherein said primary fluid is supplied by a supply syringe chamber and said discharge lumen is coupled to a syringe vacuum chamber, and said supply syringe and vacuum syringe are operated together to couple fluid supply with discharge lumen collection.

28. (Currently Amended) A method of removing particulate debris from a vessel using a catheter assembly the method comprising:

inserting and advancing a sheath having a discharge lumen to a location in the vessel said delivery sheath discharge lumen coupled to a collection vessel; said sheath not having an occlusion balloon thereon such that said sheath partially blocks the vessel but allowing some blood flow in the vessel;

inserting and advancing an interventional device to a treatment location said interventional device of type having;

an elongate body enclosing a fluid supply lumen and a stent delivery inflation lumen;

a stent deployment balloon for delivering stent treatment located near the distal tip of said elongate body;

a gap communicating with said fluid supply lumen for introducing a primary fluid flow in said vessel, said gap located distal of said stent deployment balloon, said gap projecting fluid in an initial direction away from the central axis of the interventional device said wall located immediately adjacent said gap; and forming an annular surface next to the gap on the interventional device;

said wall serving to restrict entrainment of fluid by said primary fluid flow, thereby creating a pressure difference across said primary fluid flow such that said primary fluid flow turns through an angle away from said initial direction of the toward said wall thereby exhibiting the Coanda effect thereby;

promoting retrograde flow into said discharge lumen.

29. (Previously presented) The method of claim 28 further including a suction applied to said sheath lumen to withdraw material from said vessel.

30. (Previously presented) The method of claim 29 further including a suction applied to said sheath lumen to withdraw material from said vessel.